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THE DECIMAL SYSTEM

ADAPTED TO

OUR PRESENT COINAGE.

BY

J. S.,
BARRISTER-AT-LAW.

LONDON:
GROOMBRIDGE & SONS, 5, PATERNOSTER ROW.
1857.

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THE DECIMAL SYSTEM ADAPTED TO OUR PRESENT COINAGE.

Public attention has of late years been so powerfully attracted towards the advantages which society would derive from the introduction of a decimal system into our coinage, that the most incompetent arithmetician may be pardoned for hazarding an opinion, or advancing a suggestion, on a subject so interesting to all.

We may recollect that, in the year 1847-8, the florin, or tenth part of the sovereign, was created with the sole view of introducing the decimal element into our monetary scale. We must be aware, too, that a Commission, formed of our most able calculators and most approved financiers, is at the present moment actually inquiring into the feasibility of introducing a decimal coinage into this kingdom, and that their report, the result of such inquiry, may be imminently expected. This report, if favourable to the application of the decimal system, may lead to such acts of the Legislature, in the remodelling or rearrangement of our coinage, as will compel even the most uncalculating brain to give attention to a system personally affecting each member of society, and the practical working of which must inevitably affect every commercial transaction of the kingdom.

It would be superfluous to recapitulate the acknowledged advantages of a purely decimal scale of coins over a scale consisting, as now, of the inharmonious proportions of 4th, 12th, and 20th parts; but if ever it be determined that the decimal system and scale be adapted to our coinage, a chief endeavour should be to render the scale easy of comprehension, and simple in practice, to that great portion of our population who possess neither time nor capacity to elucidate intricate or abstruse calculations.

Where any change whatever would be most sensitively felt would be in our *copper* coinage—a coinage so extensively used by the poorer classes of England. To leave this portion of our coinage intact, or at least to tamper with it as little as possible, should be one great condition of any new and decimal system. The question which naturally arises is—Can we arrive at such a system, and apply such a decimal scale to our coinage, still allowing the people's moneys—our pennies, halfpennies, and farthings—to exist and circulate?

I think we clearly can do so; and to effect this, we should, by stamping these same copper coins with the required value, make them represent the decimal relation to the superior coins. And this giving a *representative* value to our currency is no innovation or startling novelty, inasmuch as our bank-notes, and indeed all paper money, is a precisely similar usage of "tokens." Thus we tenderly respect the deep-seated prejudice of the English mind, which, approving of the pruning or trimming of the tree, is still opposed to its total uprooting, whether it be of coinage or of constitution.

Let, then, the penny, the halfpenny, and the farthing exist, if not permanently, at least until that decimal scale of which they shall be made the exponents be well understood and generally adopted.

Begging the question of denomination,* let the two lowest terms of our decimal scale be called *mils* and *cents*, as being the 100th and 1000th parts of the supreme integer. I suggest, then, that each of our present copper coins be plainly stamped with its intended value in *mils* (or *cents*, according to the value hereafter to be discussed). The ear would soon become accustomed to and prefer the more euphonious and more useful terms *mils* and *cents* in place of pennies, halfpennies, and farthings. By these means we should have no new and bewildering coins of small value and of close resemblance to the dethroned coppers; we should have no abrupt change—no confusion of *new quantity* of goods for new coins—the old penny (*stamped*, and possibly called so many *mils*) would still circulate, and still without misunderstandings purchase its pennyworth. Still, likewise, would the halfpenny and farthing, stamped as the penny is with their new value (with the option, but not the necessity, of being called so many mils), still would they buy the same quantity and represent the same uses as formerly. The people would still have their usual coins, and might take their own time to adopt the new names of mils and cents. To them, to any one, it must be indifferent, as long as they still pay or receive the actual farthing, whether that farthing expresses the fourth of a penny or some other value of a new denomination; but a coin of totally new name and value (unless it comprised and was easily convertible into the common coins now in use) would, especially if of copper and abruptly introduced, cause much misapprehension, confusion, and inconvenience to traders and customers among all classes.

---

* And here, could I discover the original author of the term "mil," I would gladly express to him my acknowledgment of having pilfered his word.

Adopting this plan of stamping our present coins, the actual coin *mil* need never exist, provided it and its fractions or numbers can as readily be expressed by our present copper coinage. Moreover, by stamping our coins thus with the new value, we impress gradually and imperceptibly on the memory of even the dullest comprehension the scale which we desire to introduce. Professor Porson has soundly remarked that "no man forgets that which it is his interest to remember." Fresh in the recollection of many must be the remarkable facility with which the humbler classes on the Continent execute their sometimes difficult market accounts. Witness the Neapolitan lazzaroni, who, if asked the question, will in an instant convert any number of piastres (12 carlini each) into ducats (10 carlini each); and yet his mind is innocent of the rules of multiplication and division, whereby our schoolmaster would, in this case, tell us to multiply by twelve and divide by ten!

It will be seen, by the above remarks, that I consider the farthing, unaltered for the present, save by *stamping*, as the proper and convenient coin towards which we should pay the complimentary tribute of making *it* the starting-point for any new scale which we may wish to adopt. If, in deference to the uses, wishes, or prejudices of the more wealthy classes, we were to adopt the sovereign or pound sterling as our starting-point (and many do advocate this proceeding), our next downward step would be the tenth of the sovereign or the present florin (that pernicious introduction—pernicious because useful solely in its decimal relation to the sovereign alone of all our coins). If we take the pound sterling, then, as our integer, the decimal scale consequent on it would be thus—

$$\underset{(20s.)}{1\text{ sovereign}} = \underset{(2s.)}{10\text{ florins}} = \underset{(2\frac{4}{10}d.)}{100\text{ cents}} = \underset{(\frac{6}{25}\text{ of }1d.)}{1000\text{ mils}}\ ;$$

and our present farthing would be $1\frac{1}{24}$ or $\frac{25}{24}$ of a mil (see Table III.) Thus the cent and the mil have a wholly undecimal fraction; and if the cent is *coined*, our present coppers are valueless in relation to it. To obviate the inconvenience of these $2\frac{4}{10}d.$ and $\frac{6}{25}$ of $1d.$, we must either do away with a great portion of our smaller coins and coin the new ones, which, as mils and cents, we must substitute for the old pennies, farthings, etc.; and here we can imagine the confusion of vendor and purchaser under this most puzzling system—the great similarity of the new mil to the old farthing—the subtle and much bebattled difference between $2\frac{1}{2}d.$, i. e. $2\frac{5}{10}$ worth of an article and $2\frac{4}{10}d.$ worth of the same! Or secondly, pursuing the same scale, we may, as some suggest, without substituting a new coin, *allow* the cent ($2\frac{4}{10}d.$) to be represented by the present coins, $2\frac{1}{2}d.$; that is, to allow $2\frac{5}{10}d.$ to equal $2\frac{4}{10}d.$, the difference (and to the small trader what a difference!) being $9\frac{6}{10}d.$ in every pound, or four pounds per hundred pounds. The third solution, viz., that of using and *stamping* with their decimal value our present coins, would here be, in a great measure, defeated by the large and intricate fraction ($\frac{25}{24}$) representing the farthing, and which fraction, for reasons hereafter to be explained (page 11), I would name the "*solving fraction.*"

Admit, on the other hand, that we take the farthing, our lowest instead of our highest coin, as our starting-point, and the next consideration will be what value in mils, or fractions of the mil, we shall assign to this our lowest coin, the farthing. On this depends the existence and utility of our whole copper coinage; for not only should the farthing represent such a number or portion of mils as will when raised to 10, 100, and 1000 equal our present larger coins, but also it should consist of such a number or fraction of the mil as will be clear and comprehensible when doubled, trebled, or quadrupled (as would be the farthing in the halfpenny, three-farthings, and penny). Among our present coins we have several already in pure decimal relation to each other; for example, the florin as tenth of the sovereign, the sixpence as tenth part of the crown (5*s.*), and the threepence as tenth of the half-crown—all existing individual common coins. If we complete these scales by supplying the absent tenths, we shall have the following three scales:—

	Integer.	10th.	100th.	1000th.	The present Farthing, or
1st.	Sovereign (£1.)	Florin (2*s.*)	Cent ($2\frac{4}{10}$*d.*)	Mil ($\frac{6}{25}$ of 1*d.*) ∴	$\frac{1}{4}=\frac{25}{24}$ or $1\frac{1}{24}$ of a Mil.
2nd.	The Victoria (£2 10*s.*)	Crown (5*s.*)	Cent (6*d.*)	Mil ($\frac{6}{10}$ of 1*d.*) ∴	$\frac{1}{4}=\frac{5}{12}$ of a Mil.
3rd.	The Victoria (£1 5*s.*)	Decime (2*s.* 6*d.*)	Cent (3*d.*)	Mil ($\frac{3}{10}$ of 1*d.*) ∴	$\frac{1}{4}=\frac{5}{6}$ of a Mil.

In each of these scales two gradations are formed by existing coins, the other two divisions requiring new coins; thus in all three scales *the mil* is wanting. In the first, the *cent* must be a new coin; and in the latter two the (as I venture to call it) "Victoria" must also be a new coin. Now, as it is clear that our present coins, without substitution or addition, *cannot* form a "decimal scale," we must submit to some inconvenience and sacrifice to attain so desirable an object, and we should be cautious not to spoil such an advantage as a decimal coinage by any half measures or bungling patchwork.

Still holding in view the expediency of substituting as few new coins as possible, and of keeping in circulation as many of the old coins as we consistently can, we might yet impose another condition on our scale, viz., that it should in its coins assimilate, or at least approximate, to the coinage of continental nations. The scale which I am about to advocate as having claims equal at least to those of the preceding three, has also the recommendation of requiring, like them, only two new coins; also of closely approximating to the French coinage, thereby much facilitating pecuniary transactions between the two nations; and, lastly, of having, as the decimal representative of the farthing, a fraction far more simple and far more easily worked than the other three.

The scale I mean would be,

Integer.	10th.	100th.	1000th.	The Farthing or
The Victoria (16s. 8*d.*)	*Florin* (1*s.* 8*d.*)	*Cent* (2*d.*)	*Mil* $\frac{1}{5}$ of 1*d.*) ∴	$\frac{1}{4}=1\frac{1}{4}$ or $\frac{5}{4}$

In all the above four scales the farthing, *stamped*, would do away with any *necessity* (for the present at least) of the actual coin mil.

One advantage of this latter scale of coinage would be, that *when* the rate of exchange allows the French franc to be of English value, *tenpence* (its *supposed* value always), then our new florin (1*s.* 8*d.*) would be identical with the two-franc piece of France, and our Victoria (16*s.* 8*d.*) the same as the Napoleon (20 francs). The relative values to each other of the coinages of the two countries would of course depend, normally, on the difference of quantity of alloy in either metal—the British being of remarkable purity—and, accidentally, on the demand for bullion and the rate of exchange between the two nations. At the present rate of exchange, the sovereign is worth rather more than 25 francs, but any plethora of gold in France would (as in the year 1815-16) reduce its value to 24 francs, at which exchange the Victoria *is* the Napoleon, the two-franc piece the same as the new florin; the franc piece might be "change" as half our florin, and the five-franc and ten-franc pieces, and even the sous pieces, might come into useful circulation among us. The par of exchange being 25·20, our new Victoria (16*s.* 8*d.*) at par would be 21 francs; and our new florin (1*s.* 8*d.*) 2 francs 10 centimes. Allowing always for the difference of the exchange, we also find that one hundred (or one thousand) of our *mils* will always equal *the double* of the same number of French cents—a very useful similarity; as 100 of our mils = 1 florin, 1*s.* 8*d.* or 20*d.* or 2 francs, so does 100 of their cents = 1 franc. Equally useful, too, we shall find that any number of French cents will equal half the amount of English money that is represented by the same amount of our mils; as, for instance, 6000 mils = £5, then (at the exchange of 24*) 6000 French cents will = £2 10*s.*

The adaptability of this new coinage, of coins valued at 16*s.* 8*d.* and 1*s.* 8*d.* each, to our present coinage is shown by the fact that six of these new Victorias would equal the five-pound note, of course twelve equalling the ten pound. Three Victorias would be represented equally well by two present sovereigns and a half-sovereign; twelve new florins would equal the present sovereign; three the crown, six the half-sovereign; and two and a half new florins would express and be change for the world-known dollar at its common value, 4*s.* 2*d.* *All* our present coins would be available as "change" for the new Victorias (16*s.* 8*d.*) and florins (1*s.* 8*d.*); for example, for the new Victoria we might receive 100 cents (or present twopenny pieces), or we might receive fifty fourpenny pieces, or thirty-three sixpences and one cent, or sixteen shillings and two fourpenny pieces; or, in fact, many other varieties of change, which will strike the inquirer without present quotation. Lastly, I advance the greatest merit of this scale of coins, viz., the

"practicability" and simplicity of the fraction representing the farthing, viz., $1\frac{1}{4}$ or $\frac{5}{4}$ mils. The terms of this fraction, both numerator and denominator, are lower, more easily handled as multiple or divisor (as which we shall show they will have to be used), than those of the other three scales quoted above. Moreover, this fraction consists, not of sixth, twelfth, or twenty-fourth parts, but simply of *quarters* (or fourth parts), with the use of which well-known division all orders are perfectly conversant. I now explain why I attach so much importance to the terms or value of the fraction representing our farthing. I have ventured to call it the "Solving Fraction" for this reason, that to convert any sum of present money into the new value of mils, cents, etc., we have only to reduce the given amount to its lowest terms (farthings), and then use the solving fraction, which is the equal of the farthing; thus, "multiply the number of farthings by the numerator of the solving fraction (in this case 5), and then divide by its denominator (here 4)."

For example, this scale has 1 Victoria or 16*s.* 8*d.* as equalling 10 florins, 100 cents, and 1000 mils; act then as above directed and we *prove* this right, as

16*s.* 8*d.* = 800 farthings; 800 × 5 = 4000; 4000 ÷ 4 = 1000 mils.

A simple and easy process,* but one in which it is evident that we are much aided by having that fraction $\frac{5}{4}$ instead of $\frac{5}{6}$, $\frac{5}{12}$, or $\frac{25}{24}$, as in the other three scales. To convert mils and cents, etc., into £ *s.* *d.*, we invert the process, viz., we multiply by the denominator the given amount of mils, then divide by the numerator of the solving fraction, by 4, by 12, and by 20. A somewhat remarkable aid to memory occurs too in this scale, viz., that wherever *one* farthing present money occurs, *one* mil and *one* quarter represent it, wherever *two* farthings occur, the equivalent is *two* mils and *two* quarters, and where *three* farthings, *three* mils and *three* quarters. We can also see that while there may be no occasion or necessity to have the mil as an actual coined piece of money, still, as in this scale the present penny represents *five* mils exactly, there is no reason why, at a propitious moment, the coin mil should not supersede the farthing.

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* It may be here remarked that during the "late" war—by which is meant the war with France under the Empire—the exchange, which is now 25·20, was as low as 18·12!

* A shorter method is set forth at Table IV.

The penny, by the above scale, will be stamped 5 mils, the halfpenny $2\frac{1}{2}$ mils, and the farthing $1\frac{1}{4}$ mils. The cent or twopence, copper or silver as now, might be stamped "1 cent or 10 mils" and "2*d.*" on the reverse; and the florin and the Victoria also being stamped with their value in present money, and in mils or cents, would not, by their introduction, interfere with the circulation of any present coins. This system of introducing a new system and scale by means of stamping the present coins is, of course, applicable to all four of the scales above given—to the latter one with the greatest effect and ease

I now sum up the foregoing remarks by restating how earnestly I would deprecate any change in or abolition of our present copper coinage—any such change being fruitful of confusion, distrust, and discomfort to those vast numbers whose coin is emphatically "the copper;" and also by restating that we have before us four great integers (viz., £2 10*s.*, £1 5*s.*, £1, and 16*s.* 8*d.*), between each of which and the well-known, much-used, purely English "farthing" exist intermediate tenth parts (decimal relations), which tenths (with the exception of the case of the sovereign, florin, and unfortunate $2\frac{4}{10}$*d.*!) are capable of being represented by many of our present coins, and which tenths admit as "change" all, and cannot exclude any, of our current and accustomed coins and moneys. Once more, the four series are as follows:—

1st. £2 10*s.*; 5*s.*; 6*d.*; and $\frac{6}{10}$ of 1*d.*—in this, the farthing $\frac{1}{4} = \frac{5}{12}$ of a mil.
2ndly. £1 5*s.*; 2*s.* 6*d.*; 3*d.*; and $\frac{3}{10}$ of 1*d.* „ „ $\frac{1}{4} = \frac{5}{6}$ do.
3rdly. £1; 2*s.*; $2\frac{4}{10}$*d.*; and $\frac{6}{25}$ of 1*d.* „ „ $\frac{1}{4} = \frac{25}{24}$ do.
4thly. 16*s.* 8*d.*; 1*s.* 8*d.*; 2*d.*; and $\frac{1}{5}$ of a 1*d.* „ „ $\frac{1}{4} = \frac{5}{4}$ do.

Of these four scales (supposing that in each we can dispense with the mil as an actual coin) the third (or sovereign and florin scale) has the objection of requiring $2\frac{4}{10}$*d.* as a new representative coin, and the further objection of the high figures $\frac{25}{24}$ of its solving fraction (the use of which we have seen*).

The first scale (viz., £2 10*s.*, 5*s.*, etc.) has somewhat the same objection of an undecimal and high-figured fraction, viz., $\frac{5}{12}$, as its solving fraction, having, however, the advantage of requiring only one new coin, £2 10*s.* in value, which would be a beautiful coinage in gold.

The second merits attention as likewise requiring only one new coin (viz., £1 5*s.*), and because its solving fraction is less than the preceding, viz., $\frac{5}{6}$.

The fourth and last, despite its requiring two new coins, one gold, value 16*s.* 8*d.*, and one silver, 1*s.* 8*d.*, recommends itself to notice by its close approximation to the French coinage, by its admitting all our present coins, and perhaps many foreign ones, as interpreters of its terms (or as "change"), also, in addition to these recommendations, by its having for its solving fraction simply the *quarter* (i.e. $\frac{5}{4}$), a division of world-wide notoriety, and, lastly, by the assistance which its fraction, remarkable in its numerical relation to farthings,† affords to the memory in any operation or conversion of its terms.

I now proceed to give some tables and proofs of the above scales:—

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[*] See page 11.

[†] 1 farthing = 1 mil and 1 quarter.
2 do. = 2 mil and 2 quarters.
3 do. = 3 mil and 3 quarters.

Value of Present Coppers in Mils, by Table I.

A farthing	$\frac{1}{4} = \frac{5}{12}$ of a mil.		$3\frac{1}{4}d. = 5\frac{5}{12}$ of a mil.
A halfpenny	$\frac{1}{2} = \frac{10}{12}$	do.	$3\frac{1}{2}d. = 5\frac{10}{12}$
Three farthings	$\frac{3}{4} = 1\frac{3}{12}$	do.	$3\frac{3}{4}d. = 6\frac{3}{12}$
Penny	$1d. = 1\frac{8}{12}$	do.	$4d. = 6\frac{8}{12}$
	$1\frac{1}{4}d. = 2\frac{1}{12}$	do.	$4\frac{1}{4}d. = 7\frac{1}{12}$
	$1\frac{1}{2}d. = 2\frac{6}{12}$	do.	$4\frac{1}{2}d. = 7\frac{6}{12}$
	$1\frac{3}{4}d. = 2\frac{11}{12}$	do.	$4\frac{3}{4}d. = 7\frac{11}{12}$
	$2d. = 3\frac{4}{12}$	do.	$5d. = 8\frac{4}{12}$
	$2\frac{1}{4}d. = 3\frac{9}{12}$	do.	$5\frac{1}{4}d. = 8\frac{9}{12}$
	$2\frac{1}{2}d. = 4\frac{2}{12}$	do.	$5\frac{1}{2}d. = 9\frac{2}{12}$
	$2\frac{3}{4}d. = 4\frac{7}{12}$	do.	$5\frac{3}{4}d. = 9\frac{7}{12}$
	$3d. = 5$ mils.		$6d. = 1.0$ mils or 1 cent.

Table I.

The Victoria (£2 10*s.*); the crown (5*s.*); the cent (6*d.*); the mil ($\frac{6}{10}$ of 1*d.*)

1 Victoria=10 crowns=100 cents =1000 mils.
(£2 10*s.*)
1 crown = 10 cents 100 mils.
(5*s.*)
1 cent = 10 mils.
(6*d.*)

(Here the crown and the cent are present coins.)

$\frac{6}{10}$ of 1*d.*=1 mil; $\frac{60}{10}$ or 6*d.*=1 cent; $\frac{600}{10}$ or 5*s.*=1 crown; $\frac{6000}{10}$ or £2 10*s.*=1 Victoria.

The present farthing, $\frac{1}{4} = \frac{5}{12}$ of a mil.

Here $\frac{5}{12}$ is the fraction by means of which we convert £ *s.* *d.* into mils, cents, etc., hence called the "solving fraction"—the rule being (as at page 11) "reduce the given amount of £ *s.* *d.* to its lowest terms (farthing), which amount multiply by the numerator of the solving fraction, and then divide the result by its denominator,"[*] this gives us the value in mils, cents, crowns, or Victorias of the given £ *s.* *d.*, e. g.—

(The Victoria) £2 10*s.* = 2400 farthings; 2400 × 5 (numerator) = 12000; 12000 ÷ 12 = 1000 mils.

Further Examples.

£	*s.*	*d.*		*Mils.*
1	2	$3\frac{1}{4}$	=	$445\frac{5}{12}$
12	3	$4\frac{1}{2}$	=	$4867\frac{6}{12}$
123	4	$5\frac{3}{4}$	=	$49289\frac{7}{12}$
1234	5	6	=	493710
12345	6	0	=	4938120
13716	1	$7\frac{1}{2}$	=	$5486.4.3.2\frac{6}{12}$

20

274321 shillings

12

3291859 pence

4

13167438

5 solving numerator of $\frac{5}{12}$

Solving denominator 12)65837190

$5486.4.3.2\frac{6}{12}$ which amount may be called, indifferently, all mils, or 5486 Victorias 4 crowns 3 cents and $2\frac{6}{12}$ mils; or 54,864 crowns 3 cents $2\frac{6}{12}$ mils; or

[*] A short method is to add a 0 to the amount of farthings and then divide by 24, e. g., £1 2*s.* $3\frac{1}{4}d.$ = 1069 farthings; by adding 0 this is 10,690, which divided by 24 gives us, as above, $445\frac{10}{24}$ or $\frac{5}{12}$ in mils.

548,643 cents $2\frac{6}{12}$ mils; according to which decimal *point* we choose to adopt as most easy of expression.

VALUE OF PRESENT COPPERS IN MILS, BY TABLE II.

The farthing	$\frac{1}{4}$ =	$\frac{5}{6}$ of a mil.	$3\frac{1}{4}$*d.* =	$10\frac{5}{6}$ of a mil.
Halfpenny	$\frac{1}{2}$ =	$1\frac{4}{6}$ do.	$3\frac{1}{2}$*d.* =	$11\frac{4}{6}$
Three farthings	$\frac{3}{4}$ =	$2\frac{3}{6}$ do.	$3\frac{3}{4}$*d.* =	$12\frac{3}{6}$
Penny	1*d.* =	$3\frac{2}{6}$ do.	4*d.* =	$13\frac{2}{6}$
	$1\frac{1}{4}$*d.* =	$4\frac{1}{6}$ do.	$4\frac{1}{4}$*d.* =	$14\frac{1}{2}$
	$1\frac{1}{2}$*d.* =	5 mils.	$4\frac{1}{2}$*d.* =	15 mils.
	$1\frac{3}{4}$*d.* =	$5\frac{5}{6}$ do.	$4\frac{3}{4}$*d.* =	$15\frac{5}{6}$
	2*d.* =	$6\frac{4}{6}$ do.	5*d.* =	$16\frac{4}{6}$
	$2\frac{1}{4}$*d.* =	$7\frac{3}{6}$ do.	$5\frac{1}{4}$*d.* =	$17\frac{3}{6}$
	$2\frac{1}{2}$*d.* =	$8\frac{2}{6}$ do.	$5\frac{1}{2}$*d.* =	$18\frac{2}{6}$
	$2\frac{3}{4}$*d.* =	$9\frac{1}{6}$ do.	$5\frac{3}{4}$*d.* =	$19\frac{1}{6}$
	3*d.* =	1.0 mils or 1 cent.	6*d.* =	2.0 mils or 2 cents.

Table II.

The Victoria (£1 5*s.*); the decime (2*s.* 6*d.*); the cent (3*d.*); the mil ($\frac{3}{10}$ of 1*d.*)

1 Victoria – 10 decimes = 100 cents = 1000 mils.
(£1 5*s.*)
1 decime 10 cents = 100 mils.
(2*s.* 6*d.*)
1 cent = 10 mils.
(3*d.*)

(Here the decime and the cent are present coins.)

$\frac{3}{10}$ of 1*d.* = 1 mil; $\frac{30}{10}$ or 3*d.* = 1 cent; $\frac{300}{10}$ or 2*s.* 6*d.* = 1 decime; $\frac{3000}{10}$ or £1 5*s.* = 1 Victoria.

The present farthing, $\frac{1}{4} = \frac{5}{6}$ of a mil.

Here the $\frac{5}{6}$ is the "solving fraction" (see also preceding Table). To convert £ *s.* *d.* into mils, cents, decimes, and Victorias, first reduce given amount to farthings, then multiply by 5 (numerator of solving fraction) and divide by 6 (its denominator), the result will be the value of the £ *s.* *d.* in mils, cents, etc.,* e. g.—

(The Victoria) £1 5*s.* = 1200 farthings; 1200 × 5 = 6000; 6000 ÷ 6 1000 mils.

Further Examples.

£	*s.*	*d.*		*Mils.*
1	1	1	=	$843\frac{2}{6}$
12	2	$2\frac{1}{4}$	=	$9687\frac{3}{6}$
133	3	$3\frac{3}{4}$	=	$106532\frac{3}{6}$
1444	4	4	=	$1155373\frac{2}{6}$
1590	10	11	=	$1272.4.3.6\frac{4}{6}$

20

31810 shillings.
12

381731 pence.
4

1526924 farthings.
5 numerator of $\frac{5}{6}$.

Denominator of $\frac{5}{6}$, 6) 7634620

$1272.4.3.6\frac{4}{6}$, which amount (as in preceding Table) may be called all mils, or 1272 Victorias 4 decimes 3 cents and $6\frac{4}{6}$ mils, or 12,724 decimes 3 cents $6\frac{4}{6}$ mils, or 127,243 cents and $6\frac{4}{6}$ mils, according to which decimal point we select.

---

* A short method is to add 0 to the amount of farthings, and then divide by 12, e. g., £1 1*s.* 1*d.* = 1012 farthings; add 0, and we have 10,120; divide by 12, and we get $843\frac{4}{12}$ or $\frac{2}{6}$, as above.

VALUE OF PRESENT COPPERS IN MILS, BY TABLE III.

The farthing	$\frac{1}{4}$	$= 1\frac{1}{24}$ mil.	$3\frac{1}{4}d.$	$= 13\frac{13}{24}$ mils.
The halfpenny	$\frac{1}{2}$	$= 2\frac{2}{24}$	$3\frac{1}{2}d.$	$= 14\frac{14}{24}$
Three farthings	$\frac{3}{4}$	$= 3\frac{3}{24}$	$3\frac{3}{4}d.$	$= 15\frac{15}{24}$
Penny	$1d.$	$= 4\frac{4}{24}$	$4d.$	$= 16\frac{16}{24}$
	$1\frac{1}{4}d.$	$= 5\frac{5}{24}$	$4\frac{1}{4}d.$	$= 17\frac{17}{24}$
	$1\frac{1}{2}d.$	$= 6\frac{6}{24}$	$4\frac{1}{2}d.$	$= 18\frac{18}{24}$
	$1\frac{3}{4}d.$	$= 7\frac{7}{24}$	$4\frac{3}{4}d.$	$= 19\frac{19}{24}$
	$2d.$	$= 8\frac{8}{24}$	$5d.$	$= 20\frac{20}{24}$
	$2\frac{1}{4}d.$	$= 9\frac{9}{24}$	$5\frac{1}{4}d.$	$= 21\frac{21}{24}$
	$2\frac{1}{2}d.$	$= 10\frac{10}{24}$	$5\frac{1}{2}d.$	$= 22\frac{22}{24}$
	$2\frac{3}{4}d.$	$= 11\frac{11}{24}$	$5\frac{3}{4}d.$	$= 23\frac{23}{24}$
	$3d.$	$= 12\frac{12}{24}$	$6d.$	$= 25$ mils.

Table III.

The sovereign (£1); the florin (2*s.*); the cent ($2\frac{4}{10}d.$);
the mil ($\frac{6}{25}$ of $1d.$)

1 sovereign = 10 florins = 100 cents = 1000 mils.
(£1)
1 florin = 10 cents = 100 mils.
(2*s.*)
1 cent = 10 mils.
($2\frac{4}{10}d.$)

(Here the sovereign and the florin are present coins.)

$\frac{6}{25}$ of $1d. = 1$ mil; $\frac{60}{25}$ or $2\frac{4}{10}d. = 1$ cent; $\frac{600}{25}$ or $2s. =$ 1 florin; and $\frac{6000}{25}$ or £1 = 1 sovereign.

The present farthing, $\frac{1}{4} = 1\frac{1}{24}$ or $\frac{25}{24}$ of a mil.

Here $\frac{25}{24}$ is the "solving fraction." To convert £ *s. d.* into mils, cents, etc., reduce given amount to farthings, then multiply by numerator (25), and divide by denominator (24) of the solving fraction,* e. g.—

(The sovereign) £1 = 960 farthings; $960 \times 25 = 24000$;
$24000 \div 24 = 1000$ mils.

Further Examples.

£	*s.*	*d.*		*Mils.*
1	2	$3\frac{1}{4}$	=	$1113\frac{13}{24}$
12	3	$4\frac{1}{2}$	=	$12168\frac{18}{24}$
123	4	5	=	$123220\frac{20}{24}$
863	9	$11\frac{1}{4}$	=	$863496\frac{21}{24}$
1000				= 1000000

20

20000 shillings
12

240000 pence.
4

960000 farthings.
25 numerator of solving fraction, $\frac{25}{24}$

Denominator of solving fraction 24)24000000

1000.0.0.0 mils, which amount, as in preceding Tables, may be called, indifferently, all mils, or 1000 sovereigns, or 10,000 florins, or 100,000 cents, according to which decimal point we select.

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* A short method is to add to the amount of farthings their 24th part, e. g., £1 = 960 farthings; add 40 (24th part of 960), and the result is £1 = 1000 mils $\left(\frac{960\atop 40}{1000}\right)$.

VALUE OF PRESENT COPPERS IN MILS, BY TABLE IV.

The farthing	$\frac{1}{4}$	$=1\frac{1}{4}$ mils.	$3\frac{1}{4}d.$	$=16\frac{1}{4}$
Halfpenny	$\frac{1}{2}$	$=2\frac{2}{4}$	$3\frac{1}{2}d.$	$=17\frac{2}{4}$
Three farthings	$\frac{3}{4}$	$=3\frac{3}{4}$	$3\frac{3}{4}d.$	$=18\frac{3}{4}$
Penny	$1d.$	$=5$ mils.	$4d.$	$=2.0$ mils or 2 [cents.
	$1\frac{1}{4}d.$	$=6\frac{1}{4}$	$4\frac{1}{4}d.$	$=21\frac{1}{4}$
	$1\frac{1}{2}d.$	$=7\frac{2}{4}$	$4\frac{1}{2}d.$	$=22\frac{2}{4}$
	$1\frac{3}{4}d.$	$=8\frac{3}{4}$	$4\frac{3}{4}d.$	$=23\frac{3}{4}$
	$2d.$	$=1.0$ mils or 1 [cent.	$5d.$	$=25$ mils or $2\frac{1}{2}$ [cents.
	$2\frac{1}{4}d.$	$=11\frac{1}{4}$	$5\frac{1}{4}d.$	$=26\frac{1}{4}$
	$2\frac{1}{2}d.$	$=12\frac{2}{4}$	$5\frac{1}{2}d.$	$=27\frac{2}{4}$
	$2\frac{3}{4}d.$	$=13\frac{3}{4}$	$5\frac{3}{4}d.$	$=28\frac{3}{4}$
	$3d.$	$=15$ mils or $1\frac{1}{2}$ cents.	$6d.$	$=30$ mils or 3 [cents.

Table IV.

The Victoria (16*s.* 8*d.*); the florin (1*s.* 8*d.*); the cent (2*d.*); the mil ($\frac{1}{5}$ of 1*d.*)

1 Victoria (16*s.* 8*d.*) = 10 florins = 100 cents = 1000 mils.
1 florin (1*s.* 8*d.*) = 10 cents = 100 mils.
1 cent = 10 mils.

(Here the cent is an existing coin.)

$\frac{1}{5}$ of 1*d.* = 1 mil; $\frac{10}{5}$ or 2*d.* = 1 cent; $\frac{100}{5}$ or 20*d.* or 1*s.* 8*d.* = 1 florin; $\frac{1000}{5}$ or 200*d.* or 16*s.* 8*d.* = 1 Victoria.

The present farthing $\frac{1}{4}=1\frac{1}{4}$ or $\frac{5}{4}$ of a mil.

Here $\frac{5}{4}$ is the "solving fraction." To convert £ *s.* *d.* into mils, cents, etc., reduce the given amount to farthings, then multiply by the numerator (5), and divide by the denominator (4) of the solving fraction.* The result will be the value of the given £ *s.* *d.* in mils, cents, florins, and Victorias, e. g.—

(The Victoria) 16*s.* 8*d.* = 800 farthings; 800 × 5 = 4000; 4000 ÷ 4 = 1000 mils.

Further Examples.

£	*s.*	*d.*		*Mils.*
3	3	$3\frac{3}{4}$	=	$3798\frac{3}{4}$
33	4	$5\frac{1}{2}$	=	$39867\frac{2}{4}$
345	6	7	=	414395
3345	6	8		4014400
1272	19	0		1527540
5000	0	$0\frac{1}{4}$		$6000.0.0.0\frac{5}{4}$

5000
20
100000 shillings.
12
1200000 pence.
4
4800001 farthings.
5 numerator of $\frac{5}{4}$

Denominator of $\frac{5}{4}$, 4)24000005

$6000.0.0.0\frac{5}{4}$ mils, which sum may be called, indifferently, all mils, or 6000 Victorias and $\frac{5}{4}$ of a mil, or 60,000 florins and $\frac{5}{4}$ of a mil, or 600,000 cents and $\frac{5}{4}$ of a mil.*

---

* A short method is to add to the amount of farthings the quarter of their amount, e. g., £3 3*s.* $3\frac{3}{4}d.$ = 3039 farthings, to which add its quarter, i. e. $759\frac{3}{4}$, and the result is 3039
$759\frac{3}{4}$
$3798\frac{3}{4}$, as opposite.

* Bankers, who do not enter farthings as a coin of account, will readily convert present into new money of this (Table IV.) scale, by reducing the sum to its lowest terms, which, if pence, multiply by 5 (there being 5 mils to the penny), if shillings by 60—the result being the value in mils, cents, and Victorias.

TABLE V.

Table of Coins from $\frac{1}{4}d.$ to $6d.$ raised in decimal gradation, showing which series contains any, and which the greatest number of our existing coins capable of a decimal arrangement.

		d.	s. d.	£ s. d.	£ s. d.
	If	$\frac{1}{4}$ = 10 mils, then	0 $2\frac{1}{2}$ = 100 mils, and	0 2 1 = 1000 mils, and	1 0 10 = 10,000 mils
The farthing $\frac{1}{4}$ = 5 mils	„	$\frac{1}{2}$ = 10 „ „	0 5 = 100 „ „	0 4 2 = 1000 „ „	2 1 8 = 10,000 „
	„	$\frac{3}{4}$ = 10 „ „	0 $7\frac{1}{2}$ = 100 „ „	0 6 3 = 1000 „ „	3 2 6 = 10,000 „
$\frac{1}{4}$ = $2\frac{1}{2}$ mils, $\frac{1}{2}d.$ = 5 mils	„	1 = 10 „ „	0 10 = 100 „ „	0 8 4 = 1000 „ „	4 3 4 = 10,000 „
$\frac{1}{4}$ = 2 mils, etc.	„	$1\frac{1}{4}$ = 10 „ „	0 $12\frac{1}{2}$ = 100 „ „	0 10 5 = 1000 „ „	5 4 2 = 10,000 „
	„	$1\frac{1}{2}$ = 10 „ „	0 15 = 100 „ „	0 12 6 = 1000 „ „	etc.
	„	$1\frac{3}{4}$ = 10 „ „	0 $17\frac{1}{2}$ = 100 „ „	0 14 7 = 1000 „ „	
$\frac{1}{4}$ = $1\frac{1}{4}$, $\frac{1}{2}$ = $2\frac{1}{2}$, $\frac{3}{4}$ = $3\frac{3}{4}$, $1d.$ = 5 mils .	„	2 = 10 „ „	1 8 = 100 „ „	0 16 8 = 1000 „ „	See Table IV.
	„	$2\frac{1}{4}$ = 10 „ „	1 $10\frac{1}{2}$ = 100 „ „	0 18 9 = 1000 „ „	
$\frac{1}{4}$ = 1 mil	„	$2\frac{1}{2}$ = 10* „ „	2 1 = 100 „ „	1 0 10 = 1000 „ „	
	„	$2\frac{3}{4}$ = 10 „ „	2 $3\frac{1}{2}$ = 100 „ „	1 2 11 = 1000 „ „	
$\frac{1}{4}$ = $\frac{5}{6}$ of a mil	„	3 = 10 „ „	2 6 = 100 „ „	1 5 0 = 1000 „ „	See Table II.
	„	$3\frac{1}{4}$ = 10 „ „	2 $8\frac{1}{2}$ = 100 „ „	1 7 1 = 1000 „ „	
	„	$3\frac{1}{2}$ = 10 „ „	2 11 = 100 „ „	1 9 2 = 1000 „ „	
	„	$3\frac{3}{4}$ = 10 „ „	3 $1\frac{1}{2}$ = 100 „ „	1 11 3 = 1000 „ „	
$\frac{1}{4}$ = $\frac{5}{8}$ of a mil, $1d.$ = $2\frac{1}{2}$ mils	„	4 = 10 „ „	3 4 = 100 „ „	1 13 4 = 1000 „ „	
	„	$4\frac{1}{4}$ = 10 „ „	3 $6\frac{1}{2}$ = 100 „ „	1 15 5 = 1000 „ „	
	„	$4\frac{1}{2}$ = 10 „ „	3 9 = 100 „ „	1 17 6 = 1000 „ „	
	„	$4\frac{3}{4}$ = 10 „ „	3 $11\frac{1}{2}$ = 100 „ „	1 19 7 = 1000 „ „	
$\frac{1}{4}$ = $\frac{1}{2}$ mil, $\frac{1}{2}$ = 1 mil	„	5 = 10 „ „	4 2 = 100 „ „	2 1 8 = 1000 „ „	
	„	$5\frac{1}{4}$ = 10 „ „	4 $4\frac{1}{2}$ = 100 „ „	2 3 9 = 1000 „ „	
	„	$5\frac{1}{2}$ = 10 „ „	4 7 = 100 „ „	2 5 10 = 1000 „ „	
	„	$5\frac{3}{4}$ = 10 „ „	4 $9\frac{1}{2}$ = 100 „ „	2 7 11 = 1000 „ „	
$\frac{1}{4}$ = $\frac{5}{12}$ of a mil, etc.	„	6 = 10 „ „	5 0 = 100 „ „	2 10 0 = 1000 „ „	See Table I.
* $\frac{1}{4}$ = $1\frac{1}{24}$ or $\frac{25}{24}$ of a mil	„	$2\frac{4}{10}$ = 10 „ „	2 0 = 100 „ „	1 0 0 = 1000 „ „	See Table III.

$2\frac{4}{10}d.$ not being a present coin, this scale is placed last.

TABLE VI.

The Farthing represented by different values of the Mil, as a basis of some Decimal series—showing which series contains any, and which the greatest number of present coins.

	d.	s. d.	£ s. d.	
If a farthing $\frac{1}{4}$ = $\frac{1}{4}$ of a mil, then	10 = 10 mils	8 4 = 100	4 3 6 = 1000	
„ $\frac{1}{4}$ = $\frac{5}{12}$ „ „	6 = 10 „	5 0 = 100	2 10 0 = 1000	See Table I.
„ $\frac{1}{4}$ = $\frac{1}{2}$ „ „	5 = 10 „	4 2 = 100	2 1 8 = 1000	
„ $\frac{1}{4}$ = $\frac{3}{4}$ „ „	$3\frac{1}{3}$ = 10 „	2 $9\frac{1}{3}$ = 100	1 7 $9\frac{1}{3}$ = 1000	
„ $\frac{1}{4}$ = $\frac{5}{6}$ „ „	3 = 10 „	2 6 = 100	1 5 0 = 1000	See Table II.
„ $\frac{1}{4}$ = 1 mil „	$2\frac{1}{2}$ = 10 „	2 1 = 100	1 0 10 = 1000	
„ $\frac{1}{4}$ = $\frac{25}{24}$ or $1\frac{1}{24}$ „	$2\frac{4}{10}$ = 10 „	2 0 = 100	1 0 0 = 1000	See Table III.
„ $\frac{1}{4}$ = $1\frac{1}{4}$ „ „	2 = 10 „	1 8 = 100	0 16 8 = 1000	See Table IV.
„ $\frac{1}{4}$ = $1\frac{1}{2}$ „ „	$1\frac{2}{3}$ = 10 „	1 $4\frac{2}{3}$ = 100	0 13 $10\frac{2}{3}$ = 1000	
„ $\frac{1}{4}$ = $1\frac{3}{4}$ „ „	$1\frac{3}{7}$ = 10 „	1 $2\frac{2}{7}$ = 100	0 11 $10\frac{6}{7}$ = 1000	
„ $\frac{1}{4}$ = 2 „ „	$1\frac{1}{4}$ = 10 „	1 $0\frac{1}{2}$ = 100	0 10 5 = 1000	
„ $\frac{1}{4}$ = $2\frac{1}{4}$ „ „	$1\frac{1}{9}$ = 10 „	0 $11\frac{1}{9}$ = 100	0 9 $3\frac{1}{9}$ = 1000	
„ $\frac{1}{4}$ = $2\frac{1}{2}$ „ „	1 = 10 „	0 10 = 100	0 8 4 = 1000	
„ $\frac{1}{4}$ = $2\frac{3}{4}$ „ „	$0\frac{10}{11}$ = 10 „	0 $9\frac{1}{11}$ = 100	0 7 $6\frac{10}{11}$ = 1000	
„ $\frac{1}{4}$ = 3 „ „	$0\frac{5}{6}$ = 10 „	0 $8\frac{1}{3}$ = 100	0 6 $11\frac{1}{3}$ = 1000	
„ $\frac{1}{4}$ = $3\frac{1}{4}$ „ „	$0\frac{10}{13}$ = 10 „	0 $7\frac{9}{13}$ = 100	0 6 $4\frac{12}{13}$ = 1000	
„ $\frac{1}{4}$ = $3\frac{1}{2}$ „ „	$0\frac{5}{7}$ = 10 „	0 $7\frac{1}{7}$ = 100	0 5 $11\frac{3}{7}$ = 1000	
„ $\frac{1}{4}$ = $3\frac{3}{4}$ „ „	$0\frac{10}{15}$ = 10 „	0 $6\frac{10}{15}$ = 100	0 5 $6\frac{10}{15}$ = 1000	
„ $\frac{1}{4}$ = 4 „ „	$0\frac{5}{8}$ = 10 „	0 $6\frac{2}{8}$ = 100	0 5 $2\frac{1}{2}$ = 1000	
„ $\frac{1}{4}$ = $4\frac{1}{4}$ „ „	$0\frac{10}{17}$ = 10 „	0 $5\frac{15}{17}$ = 100	0 4 $10\frac{14}{17}$ = 1000	
„ $\frac{1}{4}$ = $4\frac{1}{2}$ „ „	$0\frac{5}{9}$ = 10 „	0 $5\frac{5}{9}$ = 100	0 4 $7\frac{5}{9}$ = 1000	
„ $\frac{1}{4}$ = $4\frac{3}{4}$ „ „	$0\frac{10}{19}$ = 10 „	0 $5\frac{5}{19}$ = 100	0 4 $4\frac{13}{19}$ = 1000	
„ $\frac{1}{4}$ = 5 mils „	$0\frac{1}{2}$ = 10 „	0 5 = 100	0 4 2 = 1000	
„ $\frac{1}{4}$ = 6 „ „	$0\frac{5}{12}$ = 10 „	0 $4\frac{1}{6}$ = 100	0 3 $5\frac{2}{3}$ = 1000	
„ $\frac{1}{4}$ = 7 „ „	$0\frac{5}{14}$ = 10 „	0 $3\frac{4}{7}$ = 100	0 2 $11\frac{5}{7}$ = 1000	
„ $\frac{1}{4}$ = 8 „ „	$0\frac{5}{16}$ = 10 „	0 $3\frac{1}{8}$ = 100	0 2 $7\frac{1}{4}$ = 1000	
„ $\frac{1}{4}$ = 9 „ „	$0\frac{5}{18}$ = 10 „	0 $2\frac{7}{9}$ = 100	0 2 $3\frac{7}{9}$ = 1000	
„ $\frac{1}{4}$ = 10 „ „	$0\frac{1}{4}$ = 10 „	0 $2\frac{1}{2}$ = 100	0 2 1 = 1000	

LONDON:
THOMAS HARRILD, PRINTER, 11, SALISBURY SQUARE, FLEET STREET.

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